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ABSTRACT

Research on factors which contribute to the development of antisocial personality disorder is reviewed. Methodological issues are critiqued, including major assessment instruments and frequently used research designs. Factors which current research indicates might lead to the continuation of antisocial behavior from childhood into adulthood are discussed. Issues examined include biosocial research, attention-deficit hyperactivity disorder, and psychosocial research. The psychosocial research focused on three variables: parent-child attachment, parental discipline and monitoring, and problem solving skills. Implications for further research and treatment are also discussed. The paper concludes that there is professional acceptance that childhood conduct disorder is a feature in the development of antisocial personality disorder, and that individuals with a history of antisocial personality disorder perpetuate a disproportionate amount of murder, rape, arson, robbery, drunk driving, and child and spouse abuse. These individuals are also disproportionately represented in the mental health and criminal justice systems. Early and accurate identification of children who are at risk for development of a conduct disorder is required, followed by enrollment in preventive treatment. Assessment devices used in research and intervention need to better control for observer bias, and research designs need to better account for confounding variables. (Contains 54 references.) (Author/JDD)

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DEVELOPMENTAL FACTORS ASSOCIATED WITH THE FORMATION OF
THE ANTISOCIAL PERSONALITY: A LITERATURE REVIEW

A Doctoral Research Paper

Presented to

the Faculty of the Rosemead School of Psychology
Biola University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Psychology

by

Kent Wesley Cannon

February 1994

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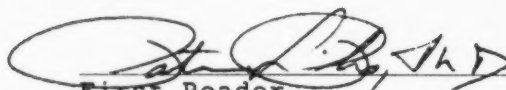
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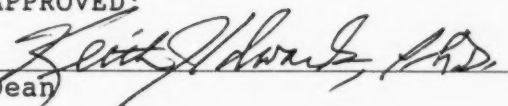
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ABSTRACT

DEVELOPMENTAL FACTORS ASSOCIATED WITH THE FORMATION OF THE ANTISOCIAL PERSONALITY: A LITERATURE REVIEW

by

Kent Wesley Cannon

Relevant research pertaining to factors which contribute to the development of antisocial personality disorder are reviewed. Methodological issues are critiqued, including major assessment instruments and frequently used research designs. The substantive issues examined included biosocial research, attention-deficit hyperactivity disorder, and psychosocial research. The psychosocial research focused on three variables: parent-child attachment, parental discipline and monitoring, and problem solving skills. Implications for further research and treatment are also discussed.

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DEVELOPMENTAL FACTORS ASSOCIATED WITH THE FORMATION OF THE ANTISOCIAL PERSONALITY: A LITERATURE REVIEW

Introduction

This paper presents a review of the literature published over the last 10-15 years which pertains to the developmental factors associated with the formation of the antisocial personality. While progress has been made towards identifying and understanding these developmental factors, empirical research also indicates that much is still unknown about these contributing factors (Dumas, 1989). The purpose of this review is to encourage further research and understanding of the contributing factors of this mental health disorder, which ultimately will aid in its treatment and possible prevention.

Research focusing on the epidemiological aspects of childhood disorders has repeatedly found evidence of an antisocial behavior disorder, or conduct disorder (Achenbach & Edelbrock, 1978). In general, this disorder is characterized by repeated violations of social and familial rules and of the rights of others. The prevalence of antisocial behavior as a disorder has been estimated to be as high as 10% in the general population, and represents up to 50% of all child and adolescent referrals for clinical

services (Robins, 1978). Unlike most childhood disorders, antisocial behavior tends to be stable over time, and may develop into antisocial personality disorder in adulthood (Olweus, 1979; Robins, 1978). As a result of this stability the prognosis for significant change in the antisocial individual without outside intervention is relatively poor.

This study gains relevance from the cost which antisocial behavior has for the society. Antisocial youths often remain in continual contact with mental health and criminal justice systems well into adulthood. The resulting cost from psychological and psychiatric treatment, social work, and special education programs is almost impossible to determine (Robins, 1981). However, the cost to society would not account for the personal tragedy that antisocial behavior reflects. This includes the unhappiness of those whose conduct is clinically severe. Additionally, there are the victims of murder, rape, arson, robbery, drunk driving, and child or spouse abuse which are carried out to a much greater extent by individuals who have a history of antisocial behavior than by other people (Kazdin, 1987). Because of the many victims, antisocial behavior plays a role in society unlike that of most other psychological problems, thus meriting further study.

This review begins by briefly surveying the major assessment instruments utilized to obtain data, and defining terms. The following section focuses on factors which

current research indicates might lead to the continuation of antisocial behavior from childhood into adulthood. These factors are divided into two main categories: biosocial factors and psychosocial factors. Psychosocial factors include parent-child attachment, parental discipline and monitoring, and problem solving skills. Next, implications for research are discussed, along with some suggestions for further research. This review concludes with a discussion of some implications which this information has for treatment.

Methodological Issues

Before applying research results, it is necessary to make judgements regarding the methodology employed by the researchers. To facilitate this process, this section will begin by defining the main terms used, then the major assessment instruments utilized to obtain data will be discussed briefly. Lastly, the frequently used research designs will be described and critiqued. This will allow the reader to be aware of the strengths and weakness of the methodology before applying this research.

Definitions

The definitions given in this section are not intended to be comprehensive. Instead, they are described in relation to the research in which they are used. Some attention is focused on the term conduct disorder to better

demonstrate the relationship between conduct disorder and antisocial personality disorder.

Conduct disorder. An accurate definition of conduct disorder is important because evidence of a conduct disorder with onset before age 15 is an essential part of the DSM-III-R (American Psychiatric Association [APA], 1987) diagnostic criteria for antisocial personality disorder. If a subject's history does not satisfactorily demonstrate the presence of a conduct disorder with onset before age 15, then this subject cannot be diagnosed as having antisocial personality disorder. It is also important to understand the meaning of this term since a significant amount of the research which focuses on the developmental factors which contribute towards the formation of antisocial personality disorder focus on one or more of the various behaviors which make up this syndrome.

The DSM-III-R (APA, 1987) described the essential feature of a conduct disorder as "a persistent pattern of conduct in which the basic rights of others and major age-appropriate societal norms or rules are violated" (p. 53). The behavioral pattern associated with this disorder include stealing, running away from home overnight, lying, fire-setting, frequently being truant from school, destroying property, and being physically cruel to people and/or animals.

Antisocial personality disorder. The DSM-III-R (APA, 1987) describes antisocial personality disorder as a "pattern of irresponsible and antisocial behavior" (p. 342). This pattern may be evident in occupational difficulties, unlawful behavior, aggressiveness, impulsiveness, disregarding the truth, irresponsible parenting, and lack of remorse.

Attachment classification. The concept of attachment classification is relevant to this review because many studies have found a significant relationship between the level of attachment in the mother-infant relationship and the development of childhood conduct disorder. Attachment refers to a set of contact seeking behaviors which serve to maintain closeness between one person and another (Reese & Lipsitt, 1973). These behaviors may be classified as indicating whether a child is securely, avoidantly, or ambivalently attached. Securely attached infants occasionally seek to touch and be close to their mother when she is present, engage in contact-maintaining behavior following being left alone, and are curious about new objects or seek to explore new environments when their mothers are present. Avoidantly attached infants are not upset by their parent's absence, and ignore the parent's efforts at interaction. Ambivalently attached infants show distress whether the parent is present or absent (Hetherington & Park, 1975).

There was not a consensus regarding the definitions reviewed in this section. For example, although some researchers used the complete DSM-III-R (APA, 1987) criterion to determine whether or not an individual had antisocial personality disorder, other researchers only used parts of this whole criterion when they attempted to make the same determination. This makes it difficult to compare the different research findings, because whether or not they are measuring the same construct is obscured.

Major Assessment Instruments Used

It is important to determine the reliability and validity of the assessment instruments utilized in the reviewed research. This will allow the reader to better interpret the results since part of the interpretation process involves determining the reliability and validity of the assessment instruments. It is important to note that this section only addresses the major assessment measures which were used in this review.

Antisocial and conduct disordered behavior. In measuring the degree of aggression in adult men some researchers utilized the Minnesota Multiphasic Personality Inventory (MMPI) (Eron & Huesmann, 1984; Huesmann, Eron, Lefkowitz, & Walder, 1984). The MMPI is a frequently used self-report inventory which includes 10 major clinical scales to describe personality traits. The above researchers used clinical scales 4 and 9, and the validity

scale F to determine the degree of aggressiveness. While these scales are reported to measure some antisocial tendencies, they are not direct measures of aggression. However, viewed with caution the above scales may give some indication of a pattern of aggressiveness.

Some researchers used the teacher version of the Child Behavior Checklist to measure aggression and passive-withdrawal in children age 4 to 16 years (Patterson & Bank, 1986; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989). The Child Behavioral Checklist has four scales including conduct disorders and anxiety-withdrawal. It is designed as a screening device and takes teachers about 20 minutes to complete.

This inventory is one of the most widely used problem-behavior rating scales for children (McConaughy & Achenbach, 1989). It is reported to be both a valid and reliable checklist, with norms based on 1,100 randomly selected nonreferred children. It is scored in terms of raw scores, T scores, and percentiles for school performance, total adaptive functioning, total problems, internalizing, externalizing, and a variety of narrow-band problem scales. Finally, cutoffs are provided for separating scores in the normal versus the clinical range.

Peer, teacher, parent, and spousal ratings of aggressive behavior were used with adults and children in several of the research studies (Eron & Heusmann, 1984;

Huesmann et al., 1984; Olweus, 1980). These types of ratings tend to be reliable, and provide a rich set of data. Other researchers used trained observers to code/score adult and child behaviors (Anderson, Lutton, & Romney, 1986; Brunk & Henggeler, 1984; Isabella, Belsky, & Von Eye, 1989; Patterson & Bank, 1986). The use of trained observers tends to lead to reliable results, and tends to be accurate assessment of the subject's behavioral patterns.

Attachment classification. The Ainsworth Strange Situation Scale was used to measure the quality of the mother-child attachment relationship as secure, insecure-avoidant, and insecure-resistant (Fagot & Kavanagh, 1990; Isabella et al., 1989; Lewis, Fiering, McGoffog & Jasker, 1984; Renken et al., 1989). The Ainsworth Strange Situation Scale consists of a sequence of eight episodes involving brief separations from the mother and contact with a stranger. Ratings are made of the infant's (18 months to 3 years) response to the stress of separation, response to reunion, and response to a stranger.

A concern which some researchers have had about this scale is that the child's behavior may be influenced by the contrived direct observational methods used in this assessment. The mother and the infant are observed in a laboratory and not in their home, and are asked to interact in a way that has not evolved in a natural manner. Field (1987) suggested that since mother and infant are not

observed in a natural, nonstressful environment that it is not apparent what the Strange Situation Scale is measuring. However, Goossens, Van IJzendoorn, Tavecchio, and Kroonenberg's (1986) results support the view that Strange Situation Scale can reliably measure the quality of attachment in the laboratory.

Gaensbauer, Harmon, Culp, Schultz, van Doorninck, and Dawson (1985) tested infants with the Strange Situation Scale to determine whether or not it was able to make accurate inferences in the laboratory setting about the quality of caretaking infants receive at home with their mothers. The results of their study indicated that measurements made in the laboratory can be deemed to be accurate inferences about the quality of caretaking which the infants receive in their home environment. In summary, research seems to indicate that the Strange Situation Scale appears to be an accurate and reliable measure of the child's attachment patterns in the home environment.

In summary, the major assessment devices reviewed here are not without apparent weaknesses. Some are not direct measures of the constructs which they propose to measure (Eron & Huesmann, 1984; Huesmann et al., 1984). Other assessment devices may be affected by observer bias (Lewis et al., 1984; Patterson & Bank, 1986; Renken et al., 1989). Although these assessment devices have their apparent weaknesses, overall the major assessment instruments used in

this study seem to be valid and reliable measures of the constructs which they propose to measure.

Research Designs

It is important to have an accurate understanding of the experimental designs used in research in order to apply the research results to clinical practice. This section of the paper addresses the most frequently used experimental design found in the research articles cited in this paper. It discusses their strengths and weaknesses, and is not intended to give a comprehensive description of all of the research designs used in these articles.

Most of the empirical studies reviewed used ex post facto designs, in which the researchers compared pre-existing groups using some form of Analysis of Variance (Anderson et al., 1986; Brunk & Henggeler, 1984; Eron & Huesmann, 1984; Fagot & Kavanagh, 1990; Grusec & Kuczynski, 1980; Isabella et al., 1989; Lewis et al., 1984; Renken et al., 1989; Slaby & Guerra, 1988). Since the variables were not manipulated by experimenters, causal relationships between them cannot be determined; however, the direction of the relationship sometimes can be inferred. For example, the fact that there is a high correlation between adults who have been diagnosed as having antisocial personality disorder, and adults who were diagnosed as having Attention Deficit Hyperactivity Disorder (ADHD) as children only suggest that there is a strong relationship between these

two constructs, but does not suggest that the presence of ADHD behaviors in a child causes the child to develop into an adult who will be diagnosed as having antisocial personality disorder.

Several of the researchers attempted to determine which factors might contribute to the development of antisocial or conduct disordered behavior. However, in many of the studies no attempt was made to control confounding variables that may have influenced the dependent variables. For example, some researchers (Gittelman, Manuzza, Shenker, & Bonagura, 1985; Hechtman, Weiss, & Perlman, 1984) concluded that children who have ADHD also have a significantly greater tendency to engage in adult antisocial behavior. But, as other researchers have noted (August, Stewart, & Holmes, 1983; Lilienfeld & Waldman, 1990; Menuck, 1991), these studies did not control for the effects of childhood conduct disorder. As a result, childhood conduct disorder, and not ADHD, or a possible compounding effect of the two, may have accounted for these studies' results.

As mentioned earlier, the dependent measures used to assess behaviors were mostly inventories or checklists where the data were reported by peers, parents, teachers, trained observers, or children. Although these type of dependent measures can be part of a robust study, it is important to also remember that they can be subject to response bias. An example of this would be subjects who were being measured

for antisocial symptomatology might consciously or unconsciously distort their responses on various inventories about themselves due to their own personal motives. This would have a confounding effect on the results, thus giving a skewed picture of these subjects antisocial symptomatology.

Another potential confounding factor found in this type of research involves the principle of observation bias. This principle refers to the negative effects which being observed can have on how subjects present themselves to others because they want to appear socially desirable, and/or want to portray themselves in a way that pleases the experimenters. The effect of this process would be to give a skewed picture of what the experimenters were hoping to measure by affecting the degree of correlation between the dependent and independent variables.

It is important for the reader to consider both the strengths and the weaknesses of the correlational designs used while reading the research in this area. One needs to avoid ascribing causation and/or directionality to the variables being studied. It is also important for the reader to be cognizant of the effects of response bias and observation bias, since these effects may confound some of the data. These concerns make it necessary for the reader to use caution in interpreting and applying the results and conclusions drawn from the reviewed research.

Child-Adult Continuities

As mentioned in the introduction, more research is beginning to be generated in areas pertaining to the relationship between childhood and adult disorders. The relationship between an early conduct disorder and the development of adult antisocial personality has already gained professional acceptance. The professional acceptance of child conduct disorders as a feature in the development of an adult antisocial personality disorder is observed in the DSM-III-R criteria for the diagnosis of antisocial personality (APA, 1987).

Rutter (1984) describes the factors that lead to the continuation of antisocial behavior into adult life as (a) early childhood presentation, (b) pervasiveness in many situations, (c) poor peer relationships in childhood, (d) impulsivity, (e) overactivity, and (f) abnormal family of origin functioning. Additional features of a conduct disorder that were associated with antisocial behavior in adult life included unsatisfactory child rearing practices and parent criminal behavior (West & Farrington, 1977). Violent acts committed in childhood were the factors that appeared to best predict the future manifestation of adult antisocial personality disorder (Zeitlin, 1986).

Aggression appears to be stable over one's lifetime (Olweus, 1979). Huesmann et al. (1984) speculated that this is one of the reasons why the criminal justice system and

psychological establishments have not been very effective in changing aggressive behavior. By the time society becomes aware of it, aggression is a relatively stable, self-perpetuating behavior that is difficult to change. It appears that aggression as a way of solving social problems emerges early in childhood. Huesmann et al. (1984) collected data on the aggressiveness of over 600 subjects that spanned 22 years. They found that children who had high peer-nominated levels of aggression at 8 years of age had higher MMPI (F + 4 + 9) ($M = 175$) scales when 30 years old ($r = .30$, $p < .001$). These boys also had higher than average levels of criminal and driving while intoxicated (DWI) convictions. Heusmann et al. (1984) concluded that aggressive behavior is stable across time and that this stability may be due both to the stability of constitutional factors and environmental factors.

Substantive Issues

Research on the development of antisocial behavior has focused on the nature-nurture continuum. One direction of research is the biosocial viewpoint which assumes that genetic and physiological factors lead to the development of antisocial behavior (Anolik, 1983). The second major direction of current research is the psychosocial viewpoint which focuses on maladaptive styles of family and/or societal relationships. It is likely that both

constitutional and environmental factors play a part in the development of antisocial personality disorder.

As mentioned earlier, the stability of antisocial and aggressive behavior has been established. Much of the research focusing on the developmental issues involved in the formation of this disorder has focused on children and/or their families. This paper reviews current research on this topic.

Biosocial Research

Mednick and Christiansen (1977) developed a biosocial model of antisocial behavior based on research with criminals in the justice system. Their research results indicated that the physiological functioning of the autonomic nervous system in a significant number of criminals was different than the autonomic system functioning in noncriminals. The criminal's autonomic system recovered (returned to baseline prestimuli levels) more slowly after environmental stimulation than noncriminals'. The general hypothesis of this work was that reduced autonomic responsiveness and the resulting deficit in capacity for classical conditioning produce the "inability to learn from experiences" attributed to the psychopath. Specifically, it was theorized that the psychopath's failure to learn is related to situations dependent upon conditioned responses to noxious reinforcers (e.g., shock and loud noise). Mednick and Christiansen

speculated that the slower recovering autonomic nervous system may reduce the criminals' ability to alter their behavior through punishment, because supposedly noxious reinforcers are not as noxious as would be expected. Mednick and Christiansen found a significant F -ratio ($F = 10.65$, $p < .001$) for slow autonomic system recovery rates between related individuals, which suggest that autonomic system functioning may have a significant heritable component.

Adoption studies may support the role of genetically transmitted factors in the development of antisocial disorders. Moffitt (1987) used Mednick, Gabrelli, and Hatching's (1984) data to examine whether a birth parent's mental illness had any relationship with their offspring's rate of criminal behavior. The data used in this study were based on a register of 14,427 adoptions. The subjects in this study had little or no contact with their biological parents. Court convictions were used as evidence of criminal involvement, and admission to a psychiatric facility was used to indicate a mental illness on the part of the parent. No attempt was made to categorize the type of mental illness. In that study the risk of an adoptee criminal conviction rose significantly if one biological parent had been hospitalized for psychiatric reasons ($p < .01$). Adoptees whose biological parents had a psychiatric hospitalization and multiple recidivism of non-

violent criminal acts had greater risk of multiple recidivistic convictions ($p < .01$) than adoptees whose biological parents had a history of psychiatric hospitalization, but no history of multiple recidivism of non-violent criminal acts.

Schwarz (1979) theorized that biological and family influences interacted in the development of personality disorders. He assumed that genetically influenced differences such as temperament affect the child's personality or characteristic behaviors. He also postulated that if the parents failed to adjust to the child's predispositions, then patterns of maladaptive or antisocial behavior may develop. For example, if a child has a low autonomic nervous system recovery rate, the parent may need to use alternative methods of correction. Some examples would be to make a behavioral contract with the child listing appropriate and inappropriate behaviors and their consequences, placing the child on a token economy, or providing positive reinforcement for prosocial behavior. If the parent does not succeed in modifying the child's behavior, the child may continue with the maladaptive or harmful behavior.

In summary, research suggests that biosocial factors can contribute to the development of antisocial personality disorder. One study (Mednick & Christiansen, 1977) concluded that individuals with antisocial personality

disorder have a reduced ability to learn from noxious reinforcers due to a slow autonomic nervous system recovery rate. This study also concluded that slow autonomic system recovery rate is heritable. Adoption studies (Mednick et al., 1984; Moffitt, 1987) concluded that the tendency for an individual to have multiple recidivistic convictions is related to whether or not at least one of his or her biological parents had multiple recidivism of non-violent criminal acts, and/or whether or not at least one of his or her biological parents had been hospitalized for psychiatric reasons. Finally, another researcher (Schwarz, 1979) theorized that a child's genetically inherited antisocial predispositions will not manifest if the child's parents properly adjust to the child's predispositions. In conclusion, genetic predispositions can be one of the factors contributing to the development of antisocial personality disorder.

Attention-Deficit Hyperactivity Disorder

A number of studies have linked childhood attention-deficit hyperactivity disorder (ADHD) to the development of an antisocial personality disorder in adulthood (Hechtman et al., 1984; Lilienfeld & Waldman, 1990; Wallander, 1988). Hechtman et al. (1984) conducted a study to identify the level of court and police involvement of young adults who had been diagnosed as having ADHD as a child. They examined the court records of 75 young adults who were diagnosed as

having ADHD in childhood (ages 6 to 12) and 44 control subjects matched for age, sex, and social class. They found that ADHD young adults tended to have more court referrals during the past five years than the controls (47% vs. 32%, $p < .07$).

In another study, Gittelman et al. (1985) compared 101 male adolescents who had been diagnosed as having ADHD in childhood (ages 6 to 12 years) to 100 controls. They found that significantly more ADHD adolescents than controls had conduct disorders ($p < .001$). They also found that 31% of the adolescents who had ADHD as a child still had the disorder ($p < .001$). Those adolescents who still had ADHD were more likely to have antisocial or substance abuse problems than those who no longer had ADHD symptoms ($p < .001$). In a related study, Mannuzza, Klein, Konig, and Giampino (1989) examined the arrest records of the same proband and control groups. They found that those in the ADHD group were significantly more likely to have been arrested ($p < .01$), convicted ($p < .01$) and incarcerated ($p < .05$) than those in the control group.

Wallander (1988) examined the arrest records of 57 men who had been rated as having ADHD problems by their teachers eight years earlier when they were children (ages 10-13). She found that these men had significantly more arrests by young adulthood than matched controls ($p < .05$). From these studies, it appears that childhood ADHD may increase the

risk of a later development of an antisocial personality disorder.

Some researchers have looked at these and other studies and have concluded that a childhood conduct disorder, and not ADHD, may have been related to the development of adult antisocial behavior (August et al., 1983; Lilienfeld & Waldman, 1990; Menuck, 1991). Lilienfeld and Waldman stated that, while studies have shown a relationship between childhood ADHD and an adult antisocial personality disorder, these studies "fail to consider the hypothesis that this association is an artifact of the overlap between ADHD and conduct disorder; hence, this association may simply reflect the persistence of antisocial behavior from childhood to adulthood" (p. 699).

August et al. (1983), in a four year follow-up of clinically selected hyperactive boys with and without associated conduct disorder, compared 22 male adolescents who had ADHD as children with 30 male adolescents who had ADHD and were unsocialized aggressive as children. They found that significantly more adolescents in the group that had manifested both ADHD and unsocialized aggressive tendencies had a current conduct disorder than those who only had ADHD as children ($p < .01$). They concluded that this may be an indication that the findings of antisocial behavior in follow-up studies of ADHD boys may be linked to childhood aggression rather than to ADHD.

Overall, there does not appear to be a consensus as to whether or not ADHD is related to the development of antisocial personality disorder. For instance, some researchers (Gittelman et al., 1985; Hechtman et al., 1984) have concluded that children who have ADHD have a significantly greater tendency to engage in adult antisocial behavior. Other researchers (August et al., 1983; Lilienfeld & Waldman, 1990; Menuck, 1991) have concluded that a childhood conduct disorder, and not ADHD, may be related to the development of adult antisocial behavior. In conclusion, it appears that more research is needed that focuses on the possible ways in that ADHD and conduct disorder relate to each other, and the ways in which they could contribute to the development of antisocial personality disorder.

Psychosocial Research

Studies have shown that aggressive behavior in childhood is a strong predictor of a variety of problems in adulthood including criminality and serious emotional disturbance (Renken et al., 1989; Robins, 1978). A developmental history of avoidant attachment in infancy may be related to later aggressive behavior (Renken et al., 1989). The psychosocial theory of the development of antisocial behavior focuses on three variables: parent-child attachment, parental discipline and monitoring, and problem solving skills.

Parent-child attachment. Attachment theory (Renken et al., 1989) is based on the idea that attachments develop within the context of the mother-infant relationship during the infant's first year, and is also based on patterns of behavioral exchange between the infant and the mother. Attachments help to develop the infant's internal working model of interaction which form future expectations for relationships. A secure pattern of interaction is based on maternal sensitivity (i.e., consistent perception, accurate interpretation, and contingent and appropriate response to infant's signals) and insecure attachment on maternal insensitivity. Studies have found that subjective ratings of a mother's sensitivity are related to the attachment of the infant; highly sensitive mothers were more likely to have securely attached infants (Ainsworth, Bell, & Stanton, 1971; Isabella et al., 1989).

Bowlby (1973) helped to develop the theory that a child develops an "internal working model" in which core expectations about the environment, especially the availability and responsiveness of others and the worthiness of the self, are formed from early interactive experience. An infant who experiences responsive and reliable care will come to expect that responsiveness from the caregiver. The infant will also believe that he or she is effective in eliciting care from others.

Renken et al. (1989) used the data base of the Minnesota Mother-Child project to examine the antecedents of childhood aggressive/antisocial behavior. They assessed the quality of mother-child attachments at 12 months and again at 18 months using the Ainsworth Strange Situation Scale. They found that for boys seven predictors were significantly related to aggression: avoidant attachment ($p < .01$), negative affect at 42 months ($p < .01$), physical abuse ($p < .01$), maternal hostility at 42 months ($p < .01$), stressful life events ($p < .01$), lack of an emotional support system for the mother ($p < .01$), and low socio-economic status ($p < .01$). Girls who were exposed to maternal hostility at 42 months also exhibited a tendency towards later aggressiveness ($p < .01$).

Renken et al.'s (1989) data suggest that there might be a relationship between several aspects of the mother-child attachment which may contribute to the development of childhood aggressive/antisocial behavior. Failure to develop a secure mother/child attachment may make a child more likely to develop aggressive behavior. Also, a mother's hostility towards her child may lead to later aggressive behavior in both males and females. Environmental stressors also contribute to antisocial behavior. Increased maternal stress may lead to poor parental skills and increased maternal frustration and hostility.

Because they were critical of methods used in early research, Fagot and Kavanagh (1990) attempted to replicate research which indicated that insecurely attached infants had later noncompliant and aggressive behaviors. They included 109 children who were classified as secure or insecure/avoidant at 18 months. The children were observed in two settings: home and play groups. Data were obtained by trained observers on three occasions at the children's homes. Daily observations were recorded at a laboratory preschool for 10 weeks. The authors did not find significant differences between observer ratings of problem behaviors by attachment classification for boys; however, girls classified as insecure/avoidant were rated as more difficult to deal with ($p < .009$) and as having more peer difficulties ($p < .019$) than girls who were classified as securely attached. There was also continuity of behavior across time for the children between 18 months and 4 years, as indicated by the stability of ratings both at home and in the preschool play groups. Fagot and Kavanagh (1990) concluded that caution needs to be taken in applying attachment research findings because differences in future behavior based on early attachment classification appear to be small. As a result, it is hard to determine whether an infant might develop into an adult with antisocial personality disorder based on the degree to which the infant is attached to the mother.

Lewis et al. (1984) supported the theory that early mother-child attachment, as measured by the Ainsworth Strange Situation Scale, may predict later social-emotional functioning. This longitudinal study involving 113 children and their mothers who were seen at 1 and 6 years of age found that insecurely attached boys at 1 year were more likely to have schizoid ($p < .001$), uncommunicative ($p < .001$), somatic ($p < .001$), and withdrawn ($p < .001$) behavior at 6 years than those who were classified as securely attached. However, Lewis et al. pointed out that only 40% of those who were classified as insecurely attached displayed problem behaviors at age 6, and speculated that later environmental stress may have also played a part in the development of these problem behaviors. They concluded by stating that "infants are neither made invulnerable by secure attachments nor are they doomed by insecure attachments to later psychopathology" (p. 134).

In summary, some of the reviewed research in parent-child attachment seems to suggest that there is a relationship between the quality of mother-infant interaction and quality of mother-infant attachment (Ainsworth et al., 1971; Bowlby, 1973; Isabella et al., 1989). Some researchers (e.g., Renken et al., 1989) suggested that poor mother-child attachment is significantly related to future aggression of the child. However, other researchers (Fagot & Kavanagh, 1990; Lewis et al., 1984)

concluded that future behaviors are not greatly affected by the quality of early attachment.

This research seems to indicate that the quality of parent-child attachment might possibly have an effect on whether or not that child has a predisposition towards becoming an adult with antisocial personality disorder. However, whatever connection might exist, and the relative strength of its effect, seem to be unclear at this time.

Parental discipline and monitoring. Patterson and Bank (1986) developed an intervention model based on their involvement in treating families with a child who had a conduct disorder. They found that parenting skills training appeared to help diminish the child's antisocial behavior. They then theorized that deficiencies in parenting skills caused the development of antisocial behaviors in children. They further theorized that the most significant deficits in parenting skills common to parents who had a child with a conduct disorder were (a) becoming involved in relatively trivial incidents with their children, (b) threatening their children without delivering consequences, and (c) physically assaulting their children. They also emphasized the role parents played in managing the family by providing discipline, monitoring, positive reinforcement, and problem solving. They tested their hypothesis by developing a path model based on 133 fourth grade boys and their parents. They found that inadequate discipline led to coercive child

behaviors, which produced antisocial acts, which then led to further difficulties in disciplining.

According to Patterson and Bank (1986) discipline is a key variable in the development of a child's conduct disorder. Parents of problem children tend to use inadequate discipline in which they scold and threaten in both trivial and significant matters, fail to back up their threats, and have episodes of explosive discipline in which they use extreme forms of physical punishment. Parents with conduct disordered children also tend to be inept at monitoring their children and fail to believe or notice major episodes of antisocial behavior occurring outside the home. Poor monitoring also allows the child to have a great deal of unsupervised time in which to engage in antisocial behavior.

Patterson and Bank (1986) found that parents of conduct disordered children tend to have poor communication skills and tend to reward deviant behavior. They found that when children did not comply with commands, the parents retracted their requests. Thus, the children were rewarded, and were therefore more likely to use noncompliance in the future. Green, Forehand and McMahon (1979) found that parents of conduct disordered children gave more instructions or commands and did not allow their children time to comply with their requests nor required that they do so. Patterson, DeBaryshe and Ramsey (1989) theorized that a

actual behavior in responding to their children's actual misdeeds. Others (Griest, Forehand, Wells, & McMahon, 1980; Johnson & Lobitz, 1974) have conducted similar studies and obtained different results. They found that parental disciplinary techniques were influenced more by parent's consistency than the child's behavior.

Brunk and Henggeler (1984) observed the discipline methods of mothers interacting with conduct disordered, normal, and anxious-withdrawn children. They then used trained child confederates to play the three different behavioral roles. They found that all mothers who interacted with the anxious-withdrawn child role exhibited higher rates of verbal helping ($p < .001$) than mothers who interacted with the conduct disordered and normal child role. Mothers who interacted with the conduct disordered child showed higher rates of ignoring ($p < .001$), commanding ($p < .001$), and disciplining ($p < .001$) than mothers who interacted with the anxious-withdrawn and normal child role. The authors stressed the reciprocal nature of human interactions, in which the child's behavior affects the parent's and the parent's behavior affects the child's, in the development of child conduct disorder.

In a similar study, Anderson et al. (1986) used 32 mother-child dyads to examine reciprocal interactions. All the children were boys between the ages of 6 and 11 years old. Half the children fit the DSM-III-R criteria for

conduct disorder, and half the children had no home or school behavioral problems. In a repeated measures design Anderson et al. paired the children with their own mothers, mothers of conduct disordered boys, and mothers of normal boys. They found that both mothers of conduct disordered boys and mothers of normal boys made more negative responses ($p < .01$) and more requests ($p < .05$) with the conduct disorder boys than with normal boys. In addition, conduct disordered boys complied significantly less than normal boys.

Anderson et al. (1986) suggested that these results show that the child's, not the mother's, behavior had the major influence in the development of a conduct disorder. However, another of their findings may show that the mothers' behaviors do influence the boys' development of a conduct disorder. They found that conduct disorder boys' mothers were more negative to their own and other conduct disorder boys than were mothers of normal boys ($p < .001$). Perhaps this shows that the mothers' negativism also played a role in the boys' development of a conduct disorder.

In another study, Forehand, King, Peed, and Yoder (1975) found that mothers of oppositional children ($N = 20$; age range = 4-6 years) were much more negative toward their children, saw them as more poorly adjusted, and were more critical of them than mothers of normal children ($N = 20$; age range = 4-10 years). They came to the conclusion that

the mother's attitude and behavior have an influence in the child's development of a conduct disorder. However, just the opposite could be the case. The child's attitude may have produced the mother's response.

Olweus (1980) developed a path model to examine the factors in the development of antisocial behavior. His model examined four factors: (a) the mother's negativism or basic emotional attitude toward the boy during his first 4 years of life, (b) the boy's temperament or general level of activity and intensity, (c) the mother's permissiveness for aggression, and (d) the mother's and father's use of power-assertive methods such as physical punishment, threats, and violent outbursts. He found, ranked in relative causal importance, that the mother's permissiveness for aggression, the mother's negativism, the boy's temperament, and the mother's and father's use of power-assertive methods all contributed in an additive way to the development of an aggressive reaction pattern.

Another factor in the development of antisocial behavior is childhood physical abuse. As mentioned earlier, parents of conduct disordered children tend to have faulty methods of discipline and occasionally may lash out in a violent outburst which may lead to physical harm. Dodge, Bates, and Pettit (1990) found that children who were physically harmed in early life became more aggressive towards peers than those who were not ($p < .008$). They also

found that compared to other children physically harmed children were more attentive to social cues ($p < .025$), more biased toward attributing malintent ($p < .015$), and less likely to generate solutions to interpersonal problems ($p < .038$). Renken et al. (1989) found that physical abuse predicted later aggressiveness for boys ($p < .01$). Christozov and Toteva (1989), who conducted follow-up research on children whose fathers were in treatment for alcoholism, found that 78% of those children with antisocial manifestations had been physically maltreated.

In summary, these findings highlight the various areas which appear to influence whether or not a child will develop conduct disordered behavior. A significant number of these influences seem to focus around the reciprocal nature of the child's behavior and the way in which their parents interact with and discipline the child (Bell, 1968; Brunk & Henggeler, 1984; Grusec & Kuczynski, 1980; Rheingold, 1969). Although a child's behavior appears to have an affect on how the parent disciplines the child, the manner in which the parent disciplines the child also appears to have an affect on how antisocial or prosocial the child's behavior becomes (Patterson & Bank, 1986). Other findings suggest that the parents' attitudes (Anderson et al., 1986; Forehand et al., 1975; Olweus, 1980), and whether or not a child experiences a history of physical abuse (Christozov & Toteva, 1989; Dodge et al., 1990; Renken et

al., 1989) also seem to have an effect on whether or not that child is more or less likely to develop conduct disordered behavior.

Problem solving skills. Eron and Heusmann (1984) postulated that aggression is a trait which is consistent across situations and time. They also theorized that prosocial behavior or altruism is also a trait and that aggression and prosocial behavior represent opposite kinds of interpersonal problem-solving strategies learned very early in life. They developed a longitudinal study in which male subjects were rated on aggression, prosocial behavior, and social attainment at 8 ($N = 870$), 19 ($N = 427$), and 30 ($N = 295$) years of age.

Prosocial behaviors at age 8 were defined as those behaviors which could replace aggressive behavior as a general problem-solving behavior in a child's repertoire of responses. At age 19, peer nominations of leadership were included as an indication of prosocial behavior. At age 30, prosocial behavior was determined by the subject's self- and spouse-rated aggression; the subject's social failure or success as measured by the Ullman and Giovanonni (1964) scale of risk for schizophrenia; the subject's assertiveness and social skills, marital status, use of alcohol and drugs, occupational and educational attainment; frequency of television viewing; criminal justice, traffic and mental health records; Minnesota Multiphasic Personality Inventory

(MMPI) profile; Beck depression score; and ego development as measured by the Loevinger scale (Loevinger & Wessler, 1970). Prosocial behavior at age 8 predicted prosocial behavior (occupational and education status) at age 19 and age 30. Eron & Heusmann (1984) defined aggression as an action designed to injure an organism or organism surrogate. They used peer ratings; self-ratings; individual criminal justice records; and the Minnesota Multiphasic Personality Inventory scales F, 4, and 9 to rate aggressiveness. Their results indicated that aggressive behavior at age 8 predicted social failure, psychopathology, and aggression at age 19 and age 30. These results support Eron and Heusmann's (1984), hypothesis that both aggression and prosocial behavior or altruism are traits which are consistent over situations and time.

Slaby and Guerra (1988) also suggested that the stability of antisocial behavior over one's lifetime may be an indication of internalized and habitual patterns of cognition and learned problem solving methods based on internalized beliefs. They examined three forms of generalized beliefs that may support the use of antisocial behavior: (a) Aggression is a legitimate response in a variety of situations, (b) aggression increases self-esteem and helps to avoid a negative image with peers, and (c) aggression does not harm the victim. Slaby and Guerra's study indicated that antisocial-aggressive adolescents ($N =$

144) were more likely than low-aggressive adolescents to solve problems by defining them in a hostile way ($p < .001$), adopting hostile goals ($p < .001$), seeking few facts and few alternative solutions ($p < .001$), and anticipating few consequences for aggression ($p < .001$). They were also more likely to believe that aggression is a legitimate response ($p < .001$), increases self-esteem ($p < .001$), helps avoid a negative image ($p < .001$), and does not lead to suffering in the victim ($p < .001$).

In summary, some researchers have concluded that aggression is a personality trait that is learned or developed early and is relatively stable over one's lifetime (Eron & Heusmann, 1984). Furthermore, aggression appears to be a problem-solving strategy that strongly affects one's approach towards self, others, and environment (Slaby & Guerra, 1988). These results seem to indicate that a significant number of antisocial disordered adults were likely to have been predisposed towards becoming this way due to having learned aggression as a problem-solving strategy, and a way of viewing themselves, others, and the world at an early age.

Implications for Further Research

The studies in this review point out the need for further research that examines the relationship between childhood and adult disorders, how biological differences

affect the development of behavior difficulties, and the relationship between the parent's and child's behavior in the development of the antisocial personality disorder. New research also may strive to correct some of the methodological difficulties encountered in many of the studies reviewed in this paper.

Longitudinal studies would be helpful in a further examination of the link between childhood and adult mental health. This type of study would be much more reliable than using self-reports of past difficulties. These studies could help to answer questions about why some individuals with childhood behavioral problems develop adult antisocial personality disorder and why some do not. Longitudinal research could also address the long term effects of poor parent-child attachments, and faulty parent discipline and management skills. Longitudinal research may also be useful in evaluating the effectiveness of child treatment on later adult mental health and behavior.

Instruments need to be developed that reduce the effects of parent and teacher bias of many of the assessment devices used in this review. This can be achieved by using multiple measures which help to balance observer biases. For instance, instead of having observations taken by one group, such as parents, have observations taken by more than one group, like trained observers, the child's parents, and the child's teachers. There is also a need for researchers

to use standard behavioral criteria in their assessment of child behavior. For example, what is "problem" behavior and how can it be objectively measured.

Further research into how biological differences and predispositions affect behavior could help to answer questions about why some individuals develop behavior problems. This would help to develop treatment plans which may reduce risks of the development of behavioral problems. The effects of certain environmental factors on biological predispositions needs to be examined in more depth. Additionally, the relationship between innate temperament and later psychological and behavioral difficulties needs to be examined further. There is also a need to determine which problem behaviors are related to the development of antisocial personality disorder and which are not. Additionally, further research should focus on the relationship that appears to exist between the parent(s) and child so that multifaceted treatments may be developed and evaluated.

Further research needs to be conducted on how to best disseminate knowledge about antisocial personality disordered individuals to individuals who might be at high risk for interacting with and being hurt by these individuals. This information could aid in the detection and identification of antisocial personality disordered individuals, help give the readers insight into how to

better act so that they themselves do not become victims, and also give a list of sources that they can contact if they believe that they are being threatened. This would be a cost effective measure which could help protect individuals from a segment of the population whose behavior is expensive for society.

Implications for Treatment

It is apparent that preventive strategies rather than remedial ones will be most effective in the treatment of adult antisocial personality disorder. By the time an individual is an adult, the patterns of antisocial cognitions and behaviors are pervasive and difficult to change. Considering this research it appears that treating the conduct disordered child may help to prevent the continuation of antisocial behaviors.

Early identification of children at risk for the development of a conduct disorder is usually the first step in preventative treatment (Loeber, 1990). Research suggests that the foundations for antisocial behavior tend to be set in early childhood. Research results also indicate potential benefit in the inclusion of an assessment of risk factors when a child is referred by home or school for behavior problems. These risk factors may include (a) impulsivity, (b) overactivity, (c) aggressive behavior, (d)

poor problem solving skills, (e) poor parent-child attachment, and (f) poor parental discipline and management.

Research suggests that the treatment of a conduct disorder may involve both the child and the family. Individual therapy for the child may involve skills training in which the child is taught social, relational, and problem solving skills (Dumas, 1989). This would allow the child to learn how his or her behavior affects others. Social skills and empathy training could also be part of this process.

Parent-focused treatment may be even more valuable in the early prevention of antisocial behavior than individual child-focused treatment. Biosocial research suggests that the child may have a temperament or autonomic nervous system functioning that requires the parent to adjust his or her discipline and management methods. Parent training may help to provide the parent with new, more effective management techniques (Dumas, 1989; Kazdin, 1987). Role playing and practice may be necessary to help to develop techniques that are foreign to the parent.

Parent training can also include instruction in providing positive reinforcement for desired behavior and reducing the reinforcement given to antisocial behavior. Patterson and Bank (1986) emphasized parent training in the treatment of families with an antisocial child. In the development of their program, changing parental family management techniques was shown to make observable changes

in the behavior of the problem child, with these changes lasting for at least 12 months.

Family therapy may also be an effective treatment modality (Dumas, 1989; Kazdin, 1987). Family treatment could focus on the interactional patterns which help to maintain the problem behaviors. Improvement in communication between family members can also be addressed and new communication skills can be taught.

Family therapy may also address difficulties in the parental subsystem. At times, the family focus may be on the child as the identified patient instead of addressing problems within the spousal system. The parents may reinforce antisocial behavior to keep from dealing with marital difficulties. The parents could also learn how to be in charge of the children in the family and to make and enforce family rules. During the process of family therapy, sibling relationships would also be addressed. The identified child could be assisted in developing positive peer relationships and could learn appropriate age level social skills.

Although the most effective option would be to treat conduct disordered children before they develop into adults with antisocial personality disorders, this is not always possible. Prisons are full of adults who were not successfully treated as children. Changing the behavior patterns of adults with antisocial personality disorder has

not been very effective to date. However, the research in this review may give some insights into treating the antisocial adult.

Conclusion

Research seems to clearly indicate that antisocial personality disordered individuals tend to be a burden on society. Individuals with a history of antisocial personality disorder perpetuate a disproportionate amount of murder, rape, arson, robbery, drunk driving, and child and spouse abuse. These individuals are also disproportionately represented in the mental health and criminal justice system. This review gains its relevance from these considerations, and the possible benefits which a developmental perspective might have for the treatment of antisocial personality disorder.

Over the past 10 - 15 years many researchers have studied the developmental aspects of antisocial personality disorder in an effort to gain insights into its possible prevention and treatment. In the future, assessment devices used in research and intervention need to better control for observer bias, and research designs need to better account for confounding variables.

There is professional acceptance that childhood conduct disorder is a feature in the development of antisocial personality disorder. Research indicates that other factors

which might contribute to the development of antisocial personality disorder include biosocial factors, Attention Deficit Hyperactivity Disorder, the quality of the parent-child attachment, the quality of parent-child interaction, the parents' attitudes toward their children, whether or not the child was physically abused, and whether or not the child learned to use aggression as a problem-solving strategy.

In conclusion, it seems apparent that the most efficacious treatment for adult antisocial personality disorder would be one involving prevention. To be effective, this approach would necessitate early and accurate identification of children who are at risk for the development of a conduct disorder and to enroll them in preventive treatment. This treatment would ideally involve both the child and the parents. Individual treatment for the child would focus on social, empathy, and relationship skills training. Parent-focused treatment would focus on providing the parents with new and more efficient management techniques. Finally, family therapy could also focus on the interactional patterns which help to maintain undesirable behaviors, and help to develop more effective communication skills.

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